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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/689,843	10/22/2003	Kenji Kaneko	p24428.dcl.doc	4235

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EXAMINER

SMITH, RICHARD A

ART UNIT	PAPER NUMBER
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2859

DATE MAILED: 10/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/689,843	Applicant(s) KANEKO, KENJI	
	Examiner R. Alexander Smith	Art Unit 2859	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 8-10 is/are rejected.
- 7) ☒ Claim(s) 7 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>20040223</u> . | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Specification

1. The specification is objected to because of the following informalities: The specification, including the abstract and claim 1, is unclear because throughout the specification it appears to address that the first collimator operation is performed prior to the second or to the telescope operations. However, the abstract in line 11, the specification in line 15 on page 2, and the third line to the end of claim 1 contradict the rest of the specification in that they indicate that the first collimator operation is after, not prior to, the second or the telescope operations. The Applicant needs to review the entire specification and correct accordingly.

Claim Objections

2. Claims 1 and 4-8 are objected to because of the informality in claim 1 as noted in the objection to the specification above.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 2, 4, 5 and 8 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S.

2003/0048355 to Shimoyama et al.

Shimoyama et al. discloses the limitations of claims 1, 4 and 5 when the first collimator optical system is 89 with light source 80, the second collimator is 47 with light source 86, the image sensor is 88, 122 and/or 45 and the zooming mechanism is 19'.

5. Claims 1, 4 and 5 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S.

2003/0179361 to Ohtomo et al.

Ohtomo et al. discloses the limitations of claims 1, 4 and 5 when the first collimator optical system is 8, 9 with sensor 33, and the second collimator is 11, 12 with sensor 36. Furthermore, Ohtomo et al. discloses said instrument including a telescope optical system which is shown in figure 2 and includes 13-17.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are

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such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ohtomo et al.

Ohtomo et al. teaches all that is claimed as discussed in the above rejections of claims 1, 4 and 5 except for said collimator system having a field of view wider than the telescope optical system.

With respect to said viewing angle of said collimating optical system being greater than the viewing angle of said telescope optical system: This limitation is only considered to be the "optimum" ratio or values of the collimation to telescope optical system of the instrument disclosed by Ohtomo et al., that a person having ordinary skill in the art would have been able to determine using routine experimentation based, among other things, on the providing a sufficiently accurate and large view of the target to visually verify proper alignment once the auto-collimation system has found the target. See In re Boesch, 205 USPQ 215 (CCPA 1980).

8. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ohtomo et al. in view of U.S. 6,487,011 to Donath et al.

Ohtomo et al. teaches all that is claimed as discussed in the above rejections of claims 1, 4 and 5 except for said first collimator optical system and said second collimator optical system share the use of said image sensor.

Donath et al. discloses the use of a single sensor that employs a moving diaphragm 15 to setup the sensor for the wide or the target seeking field of view. Therefore, it would have been

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obvious to one of ordinary skill in the art at the time of the invention to modify the instrument, taught by Ohtomo et al., by using the same sensor, as suggested by Donath et al., in order to reduce the size of the overall device.

9. Claim 2, 3 and 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohtomo et al. in view of U.S. 6,504,602 to Hinderling.

Ohtomo et al. teaches all that is claimed as discussed in the above rejections of claims 1, 4 and 5 except for wherein each of said first collimator optical system and said second collimator optical system comprises a light source for projecting light rays toward said survey point to collimate said surveying instrument relative to said survey point, wherein said collimator optical system comprises a zoom mechanism for varying a focal length of said collimator optical system, and said viewing angle of said collimating optical system is greater than the viewing angle of said telescope optical system.

Hinderling discloses a surveying instrument employing an evaluation unit (processor 25), cameras for guiding motor assisted, automated alignment of the instrument with a target (column 4, line 55 through column 5, line 39) which includes a surveying instrument body rotatable about each of a vertical axis and a horizontal axis, an auto-collimating system which drives said surveying instrument body to rotate about each of said vertical axis and said horizontal axis to position an image of a target at said survey point within a field-of-view of said first collimator optical system, and discloses that various optical systems including target seeking and auto-focus can each employ separate light sources (λ 's 1-4) in order to help distinguish the appropriate

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source to the appropriate sensor utilizing said source to help prevent interference and noise when functioning simultaneously, a zoom mechanism (22) which can be used if a well defined image is desired for the eyepiece or for the various sensors, a telescope optical system positioned in the body, and said survey point laying within a field of view of said telescope optical system.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the instrument, taught by Ohtomo et al., to have the first and second collimator systems each comprise a light source, as taught by Hinderling, in order to help distinguish the appropriate source to the appropriate sensor and to help prevent interference and noise should both sources be operating at the same time. Furthermore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the instrument, taught by Ohtomo et al., by including a zoom mechanism for varying a focal length, as taught by Hinderling, in order to provide a well defined image to the sensors and the telescope optical system when desired.

With respect to said viewing angle of said collimating optical system is greater than the viewing angle of said telescope optical system: This limitation is only considered to be the "optimum" ratio or value of the collimation to telescope optical system of the instrument disclosed by Ohtomo, as stated above, that a person having ordinary skill in the art would have been able to determine using routine experimentation based, among other things, on the providing a sufficiently accurate and large view of the target to visually verify proper alignment once the auto-collimation system has found the target. See In re Boesch, 205 USPQ 215 (CCPA 1980).

10. Claims 1-6 and 8-10 are rejected under 35 U.S.C. 103(b) as being unpatentable over U.S. 6,487,011 to Donath et al. in view of U.S. 6,504,602 to Hinderling.

Donath et al. discloses a surveying instrument (column 1, lines 8-31) having a surveying instrument body (column 2, lines 1-10) having a first collimator optical system (comprising 1, 2, 10.1, 15 and 4) and a second collimator optical system (comprising 1, 11, 10.2, 15 and 4) each of which is positioned in said surveying instrument body to collimate said surveying instrument relative to a survey point, a viewing angle of said second collimator optical system being smaller than a viewing angle of said first collimator optical system (column 4, lines 6-30), wherein a first collimating operation is performed with said first collimator optical system after a second collimating operation is performed with said second collimator optical system, the instrument comprising an image sensor (4), wherein said second collimator optical system is capable of forming an image on said image sensor, said first collimator optical system and said second collimator optical system share the use of said image sensor, said collimator optical system is positioned to be capable of forming said image of said target on said image sensor.

Furthermore, Donath et al. discloses that the signal information for the wide viewing angle, the smaller viewing angle, and the distance measuring are sent to an evaluating unit (9).

Donath et al. does not disclose said surveying instrument comprising a surveying instrument body rotatable about each of a vertical axis and a horizontal axis, the instrument comprising an auto-collimating system which drives said surveying instrument body to rotate about each of said vertical axis and said horizontal axis to position an image of a target at said survey point within a field-of-view of said first collimator optical system, wherein each of said

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first collimator optical system and said second collimator optical system comprises a light source for projecting light rays toward said survey point to collimate said surveying instrument relative to said survey point, wherein said collimator optical system comprises a zoom mechanism for varying a focal length of said collimator optical system, a telescope optical system positioned in the body wherein said viewing angle of said collimating optical system is greater than the viewing angle of said telescope optical system, and said survey point laying within a field of view of said telescope optical system.

Hinderling discloses a surveying instrument employing an evaluation unit (processor 25), cameras for guiding motor assisted, automated alignment of the instrument with a target (column 4, line 55 through column 5, line 39) which includes a surveying instrument body rotatable about each of a vertical axis and a horizontal axis, an auto-collimating system which drives said surveying instrument body to rotate about each of said vertical axis and said horizontal axis to position an image of a target at said survey point within a field-of-view of said first collimator optical system, and discloses that various optical systems including target seeking and auto-focus can each employ separate light sources (λ 's 1-4) in order to help distinguish the appropriate source to the appropriate sensor utilizing said source to help prevent interference and noise when functioning simultaneously, a zoom mechanism (22) which can be used if a well defined image is desired for the eyepiece or for the various sensors, a telescope optical system positioned in the body, and said survey point laying within a field of view of said telescope optical system.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the instrument, taught by Donath et al., by including the rotatable body with the auto-collimating system about the horizontal axis and vertical axis, and to have the first and

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second collimator systems each comprise a light source, as taught by Hinderling, in order to provide a fast means to align the surveying instrument to the target and to help distinguish the appropriate source to the appropriate sensor and to help prevent interference and noise should both sources be operating at the same time.

Furthermore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the instrument, taught by Donath et al., by including a zoom mechanism for varying a focal length, and by including a telescope optical system wherein said survey point is aligned within a field of view of the telescope optical system, as taught by Hinderling, in order to provide a well defined image to the sensors and the telescope optical system when desired, and to allow the user to visually align the instrument or to visually verify alignment should the auto-collimation or focusing system not perform as expected.

With respect to said viewing angle of said collimating optical system is greater than the viewing angle of said telescope optical system: Donath et al. discloses the viewing angle of said second collimator optical system being smaller than a viewing angle of said first collimator optical system by a preferred ratio of 1 to 3. Hinderling discloses that the telescope optical system and the collimator optical system preferably have the same field of view. Therefore, Donath et al., as modified by Hinderling, would inherently have the wider viewing angle for the collimating optical system being greater than that for the telescope optical system in order to visually verify and manually align the system accurately to the target if necessary. Furthermore, this limitation is only considered to be the "optimum" ratio or values of the collimation to telescope optical system of the instrument disclosed by Donath et al as modified by Hinderling, as stated above, that a person having ordinary skill in the art would have been able to determine

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using routine experimentation based, among other things, on the providing a sufficiently accurate and large view of the target to visually verify proper alignment once the auto-collimation system has found the target. See In re Boesch, 205 USPQ 215 (CCPA 1980).

Allowable Subject Matter

11. Claim 7 would be allowable if rewritten to overcome the claim objections set forth in this Office Action and to include all of the limitations of the base claim and any intervening claims.

12. As allowable subject matter has been indicated, applicant's reply must either comply with all formal requirements or specifically traverse each requirement not complied with. See 37 CFR 1.111(b) and MPEP § 707.07(a).

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to Applicant's disclosure. The prior art cited in PTO-892 and not mentioned above disclose related instruments.

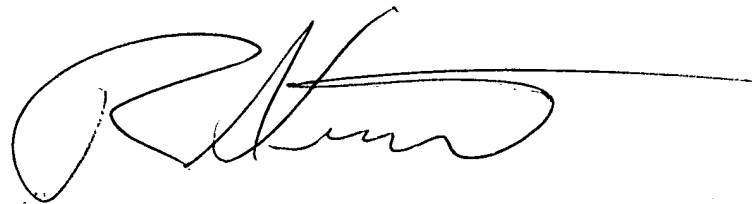
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14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to R. Alexander Smith whose telephone number is 571-272-2251.

The examiner can normally be reached on Monday through Friday from 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego F. Gutierrez can be reached on 571-272-2245. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'R. Alexander Smith', with a long horizontal line extending to the right.

R. Alexander Smith
Examiner
Technology Center 2800

RAS
October 1, 2004